

## CLAIMS

What is claimed and desired to be secured by United States Letters Patent is:

1. A method for the interpolation of input values of an input signal, with which method output values of an output signal are produced, in which the sampling sequence  
5 frequency of the output signal is greater than the sampling sequence frequency of the input signal and the shape of the output signal essentially corresponds to the shape of the input signal, comprising the steps of:

determining the difference between a first and a subsequent second input value;

scaling interpolation values of an interpolation progression in dependence on the

10 difference determined between the first and a subsequent second input value; and

producing successive output values by addition of the first input value to a scaled interpolation value.

2. A method according to claim 1, wherein the input values and the output  
15 values are spaced equally in the time domain.

3. A method according to claim 1, wherein the input values and the output values are spaced equally in the time domain and the interpolation values are computed in dependence on the phase difference between an input value and an output value.

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4. A method according to claim 1, wherein after the output values have been produced by addition of the first input value to at least one scaled interpolation value, output values are produced by equating with the last output value produced by addition or with the second input value.

5. A method according to claim 1, wherein the interpolation progression ends with a different value than that with which it starts.

5        6. A method according to claim 1, wherein the profile of the interpolation progression begins with zero.

7. A method according to claim 1, wherein the output values are produced by means of a chain of delay elements, whereby an input value at the start of the chain is  
10       used, the values of the delay elements are passed on in the clock of the output values and an interpolation value is added at the input, the output, or the input and the output of at least one delay element.

8. A method according to claim 1, wherein the interpolation progression is  
15       wholly or partly present in the form of at least one mathematical description and the interpolation values are computed by application of the at least one mathematical description.

9. A method according to claim 1, wherein the input values are data symbols of  
20       a data transmission with pulse amplitude modulation.

10. A method according to claim 1, wherein the input values are data symbols of a data transmission according to the DSL standard.

11. An apparatus for the interpolation of input values of an input signal,  
comprising:

means for producing output values of an output signal in dependence on the  
input value of an input signal, wherein the frequency of the output signal is greater than  
5 the frequency of the input signal and the shape of the output signal essentially  
corresponds to the shape of the input signal;

means for determining the difference in each case between a first and a  
subsequent second input value;

means for scaling interpolation values of an interpolation progression in  
10 dependence on the difference determined between the first and subsequent second input  
value; and

means for producing successive output values in each case for addition of the  
first input value to a scaled interpolation value.